

Claim Amendments

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (withdrawn): A configuration for detecting defects on a substrate within a processing tool, comprising:

a loadport for loading or unloading the substrate to the processing tool;

a device transfer area within the processing tool;

a robot handling area connected to said load port and communicating with said device transfer area through an input slot;

at least one processing chamber formed in the processing tool;

a robot arm configured to transfer substrates between the load port, said robot handling area, and said at least one processing chamber;

an optical sensor with an illumination system mounted within said device transfer area above said input slot, for recording

an image of a respective substrate being held by said robot arm in said device transfer area; and

a control unit connected to said optical sensor for recording the image taken with said optical sensor, and for comparing images taken by said optical sensor.

Claim 2 (withdrawn): The configuration according to claim 1, wherein said optical sensor is a sensor configured for performing a macro-defect inspection.

Claim 3 (withdrawn): The configuration according to claim 1, wherein said optical sensor has a minimum resolvable structure width of more than 10 μm and of less than 100 μm .

Claim 4 (withdrawn): The configuration according to claim 1, wherein:

 said optical sensor is a scanner recording images in columns from said substrate during a movement of said substrate effected by said robot arm;

 said control unit is connected to a motor moving said robot arm for obtaining the substrate position during the movement; and

said control unit includes a processing unit for building an image from the image columns and the substrate positions.

Claim 5 (withdrawn): The configuration according to claim 1, wherein said optical sensor includes a focusing means connected to said control unit for focusing said optical sensor to a distance according to a height of a transfer path of said substrate.

Claim 6 (withdrawn): The configuration according to claim 1, wherein:

the substrate is a reticle or a mask;

said loadport is connected to a reticle library;

said processing tool is an exposure tool; and

said optical sensor is a CCD-camera.

Claim 7 (withdrawn): The configuration according to claim 1, wherein the substrate is a semiconductor wafer and said loadport is configured to receive a wafer carrier.

Claim 8 (withdrawn): A method for detecting defects on a mask or reticle within an exposure tool having a reticle library, a

device transfer area, an optical sensor, and an illumination system for illuminating an area monitored by the optical sensor, the method which comprises:

transferring a reticle from the reticle library to the device transfer area;

recording an image of the mask or reticle with the optical sensor to generate a recorded image;

comparing the recorded image with a reference image;

issuing a signal in response to the comparison; and

transferring the mask or reticle to the exposure tool and exposing a semiconductor wafer using the mask or reticle in response to the signal.

Claim 9 (currently amended): A method for detecting defects on a semiconductor device within a processing tool, the processing tool including ~~a device transfer area, an input slot, an output slot,~~ an optical sensor, and an illumination system for illuminating an area monitored by the optical sensor, the method which comprises:

loading the semiconductor device through a load port for
providing the semiconductor device to [[the]] a device
transfer area adjacent the processing tool;

transferring the semiconductor device from the device transfer
area to the processing tool via the input slot;

recording a first image of the semiconductor device within the
processing tool by using the optical sensor;

~~transferring the semiconductor device to the processing tool;~~

performing a process step on the semiconductor device;

recording a second image of the semiconductor device within
the processing tool by using the optical sensor;

transferring the semiconductor device back to the device
transfer area via the output slot;

~~recording a second image of the semiconductor device using the~~
~~optical sensor;~~

comparing the first image with the second image; and

issuing a signal in response to the comparison.

Claim 10 (original): The method according to claim 9, wherein

the comparing step comprises:

subtracting one of the images from the other one of the images to generate a subtracted image;

identifying a pattern in the subtracted image; and

comparing the pattern with at least one reference pattern.

Claim 11 (original): The method according to claim 10, wherein the at least one reference pattern is a pattern representing a defect on a semiconductor device.

Claim 12 (original): The method according to claim 9, wherein the defect is at least one of:

a particle on a device backside causing a focus spot;

a particle on a device frontside causing distortions during resist spin-on; and

a particle on a device frontside causing resist lift-off.

Claim 13 (original): The method according to claim 9, which comprises recording the first and second images by scanning the semiconductor device during a movement of the semiconductor device across the device transfer area.

Claim 14 (original): The method according to claim 9, which comprises stopping a processing of the inspected semiconductor device in response to the signal.

Claim 15 (withdrawn): A method for detecting defects on a robot arm in a processing tool, the processing tool including a device transfer area, an optical sensor, and an illumination system, and the robot arm is configured to transfer a substrate to the device transfer area, and the method which comprises:

moving the robot arm to the device transfer area without being loaded with a substrate;

recording a first image of the robot arm in the device transfer area;

transferring a number of substrates {2} to and from the device transfer area with the robot arm;

moving the robot arm to the device transfer area without being loaded with a substrate;

recording a second image of the robot arm in the device transfer area;

comparing the first image and the second image; and

issuing a signal in response to the comparison.

Claim 16 (withdrawn): A method for detecting a substrate identification number patterned on a surface of a substrate in a processing tool, the processing tool including a device transfer area, an optical sensor, and an illumination system, and the method which comprises:

delivering the substrate to the device transfer area;

recording an image of the substrate;

identifying the identification number by way of a pattern recognition algorithm; and

issuing a signal in response to the identification.